

FIG.-1



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Target DNA completely homologous

FIG._2A

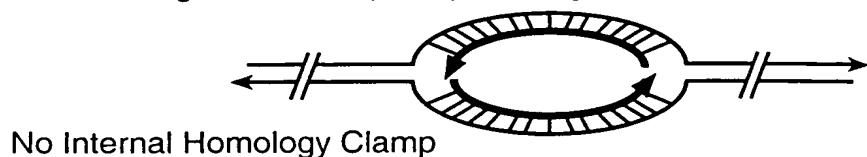


FIG._2B

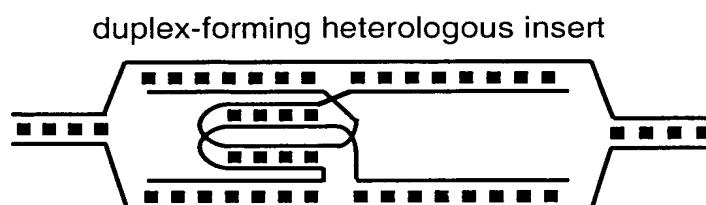


FIG._2C

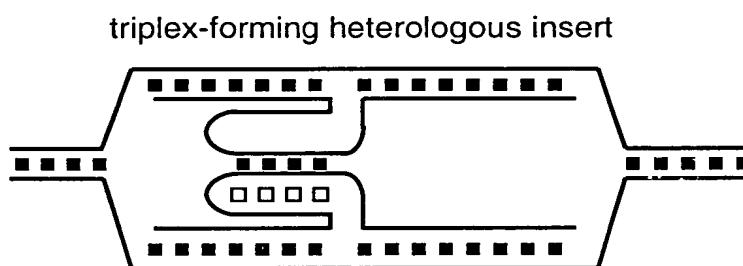


FIG._2D

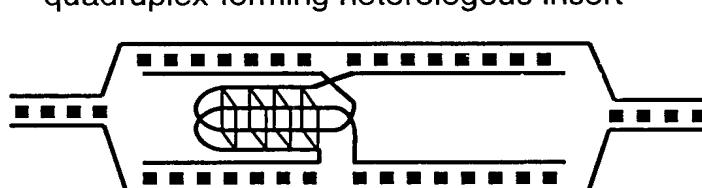


FIG._2E

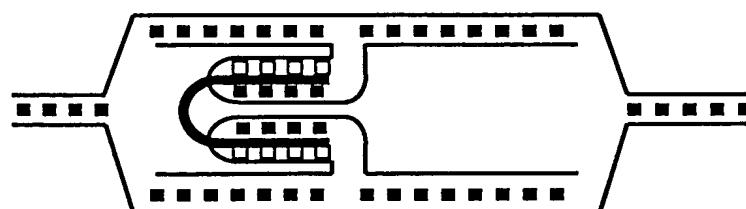
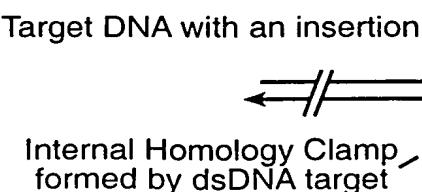


FIG._2F



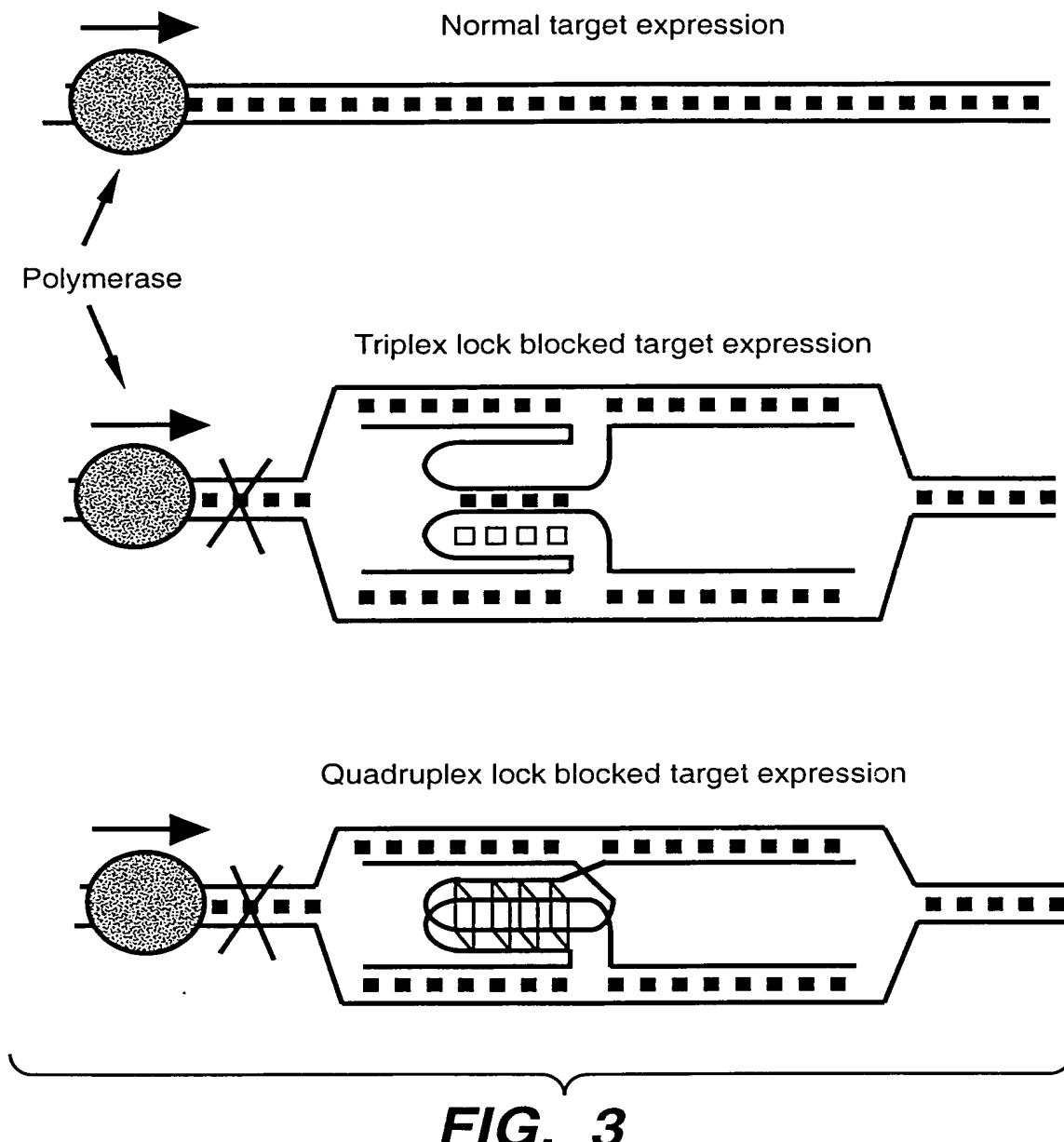
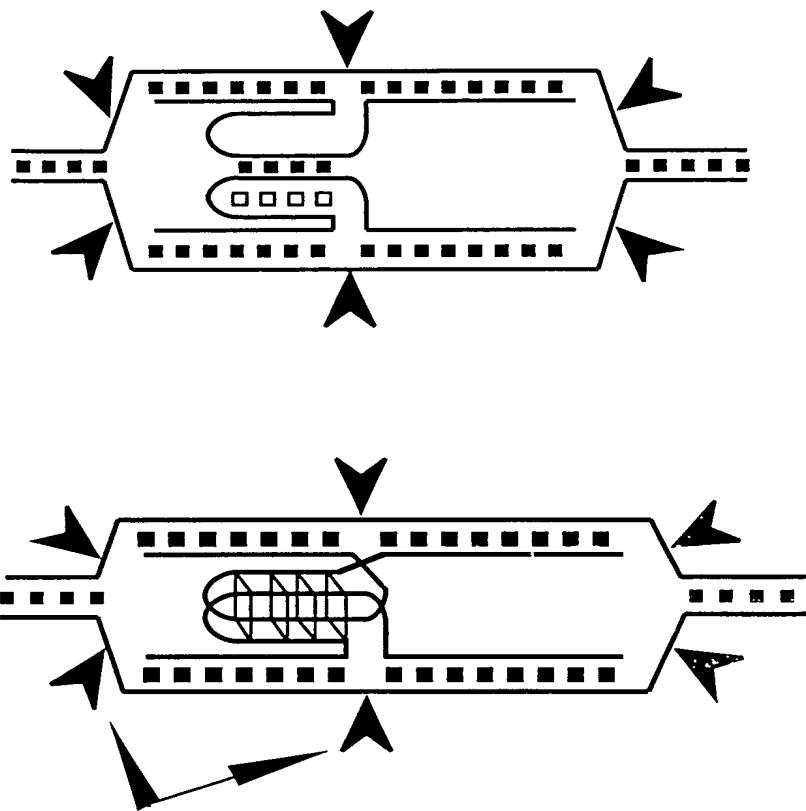


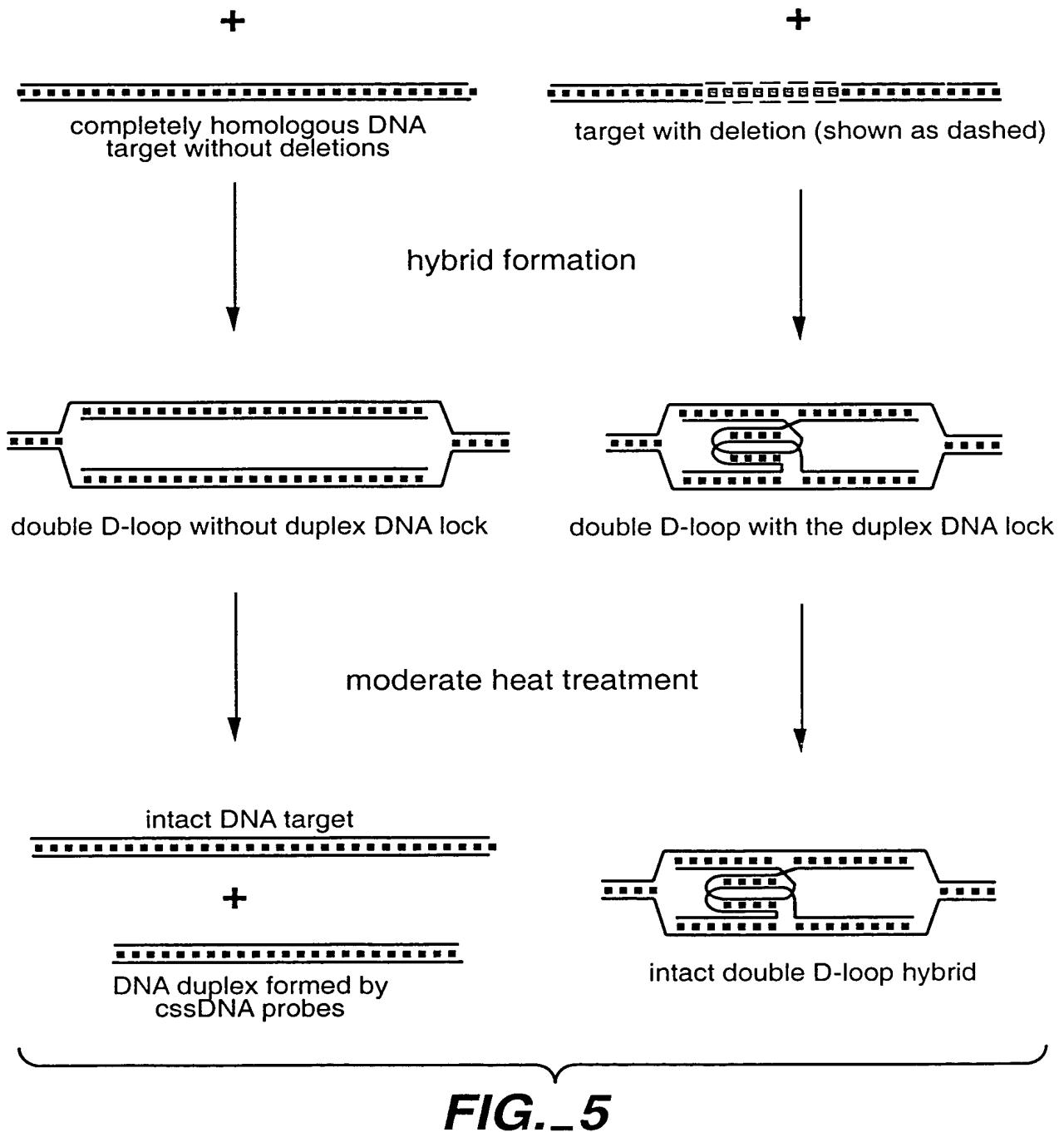
FIG..3



Hybrid recognition by
nucleic acid repair,
nucleic acid recombination,
and resolution enzymes

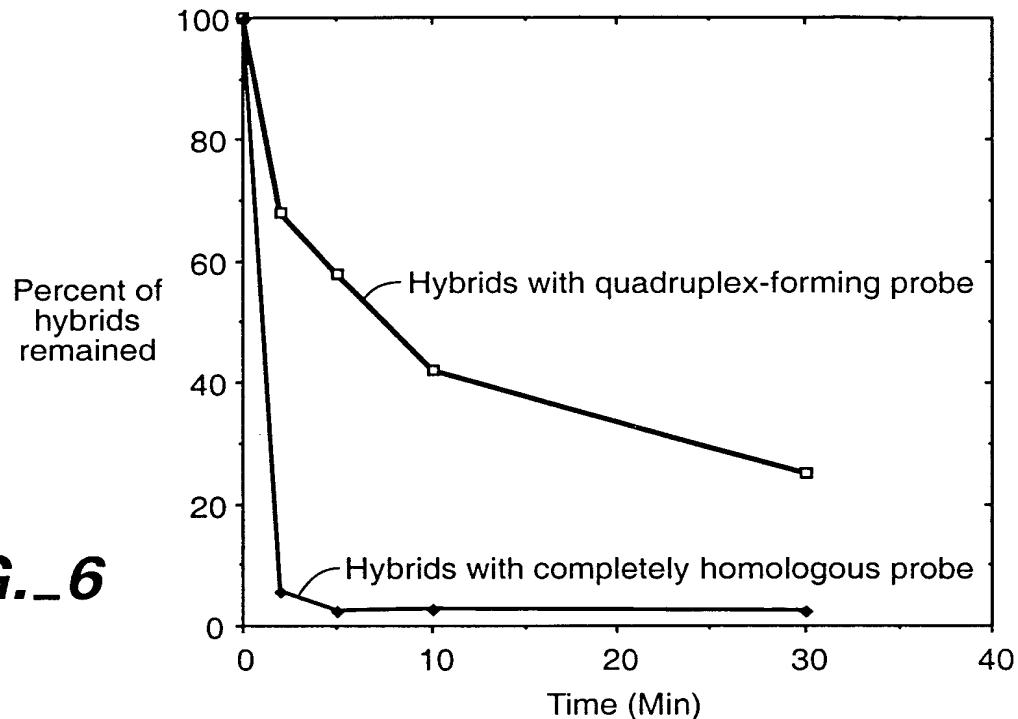
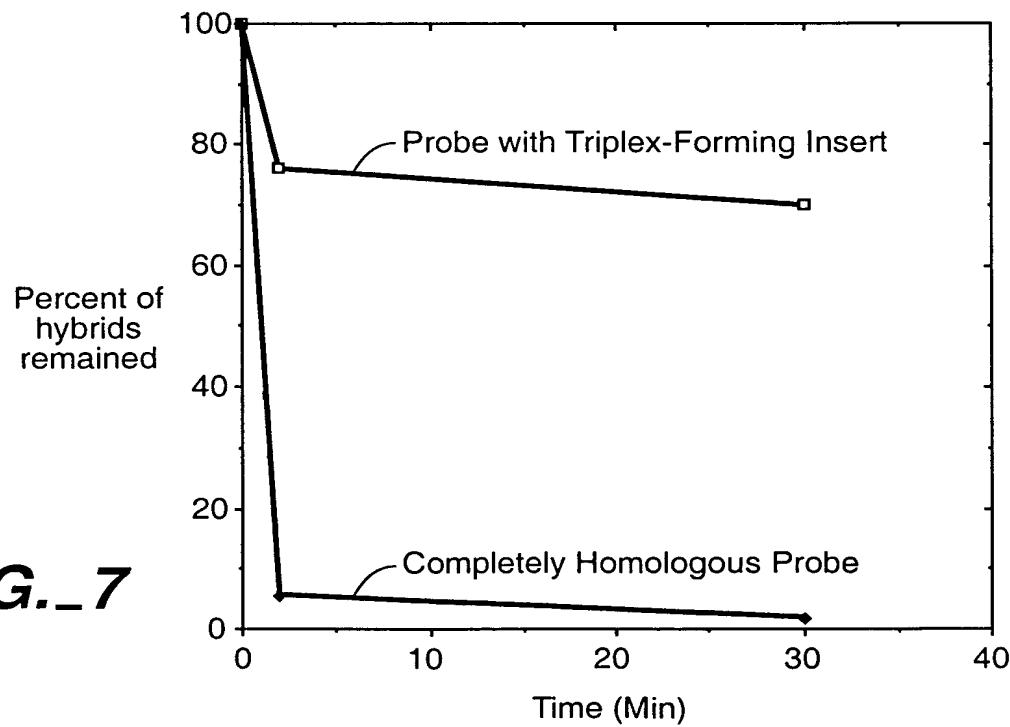
FIG._4

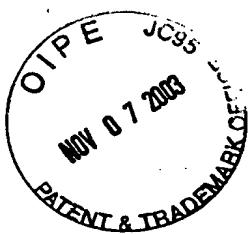
cssDNA probes





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**FIG._6****FIG._7**



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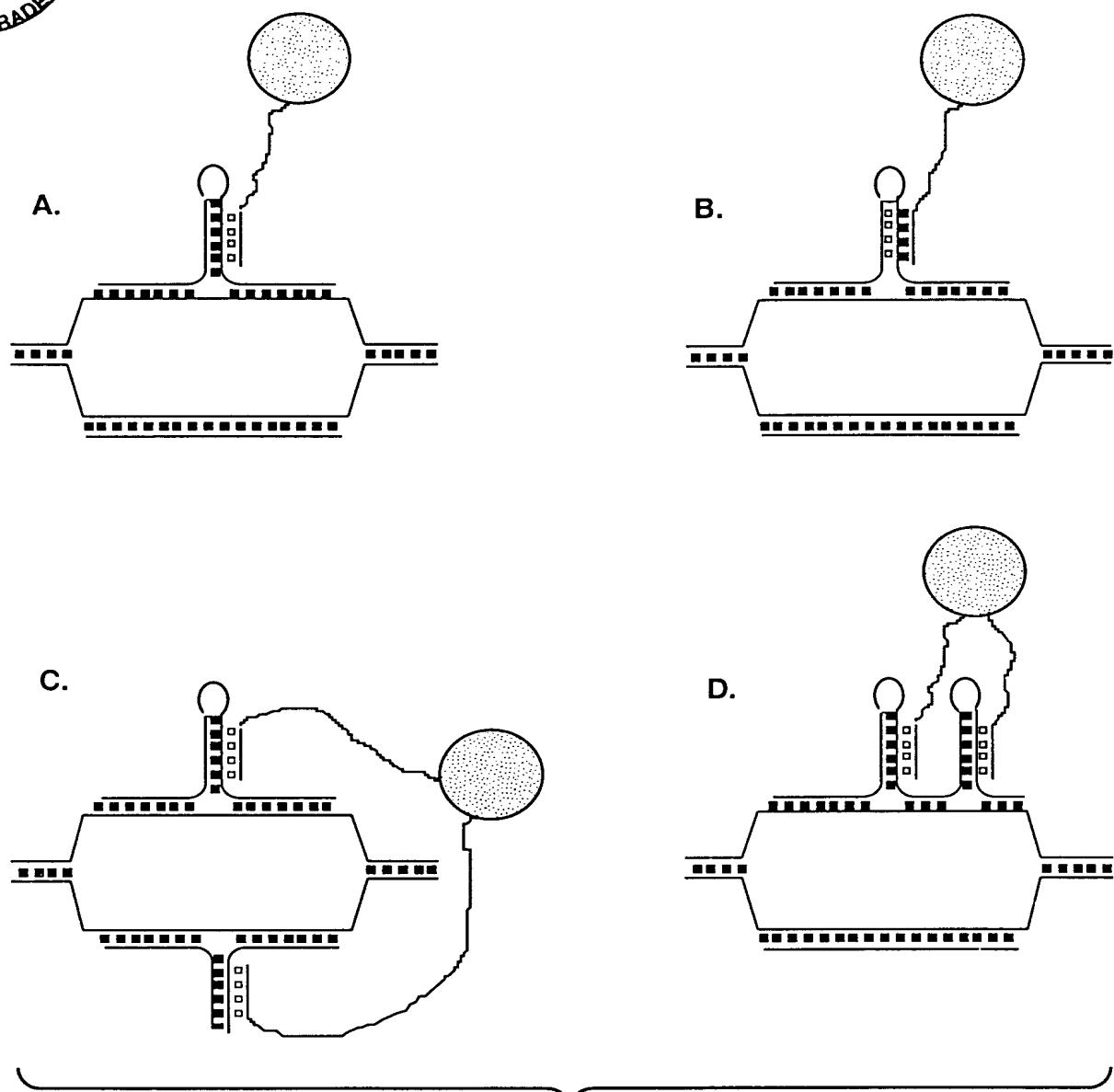


FIG._8A



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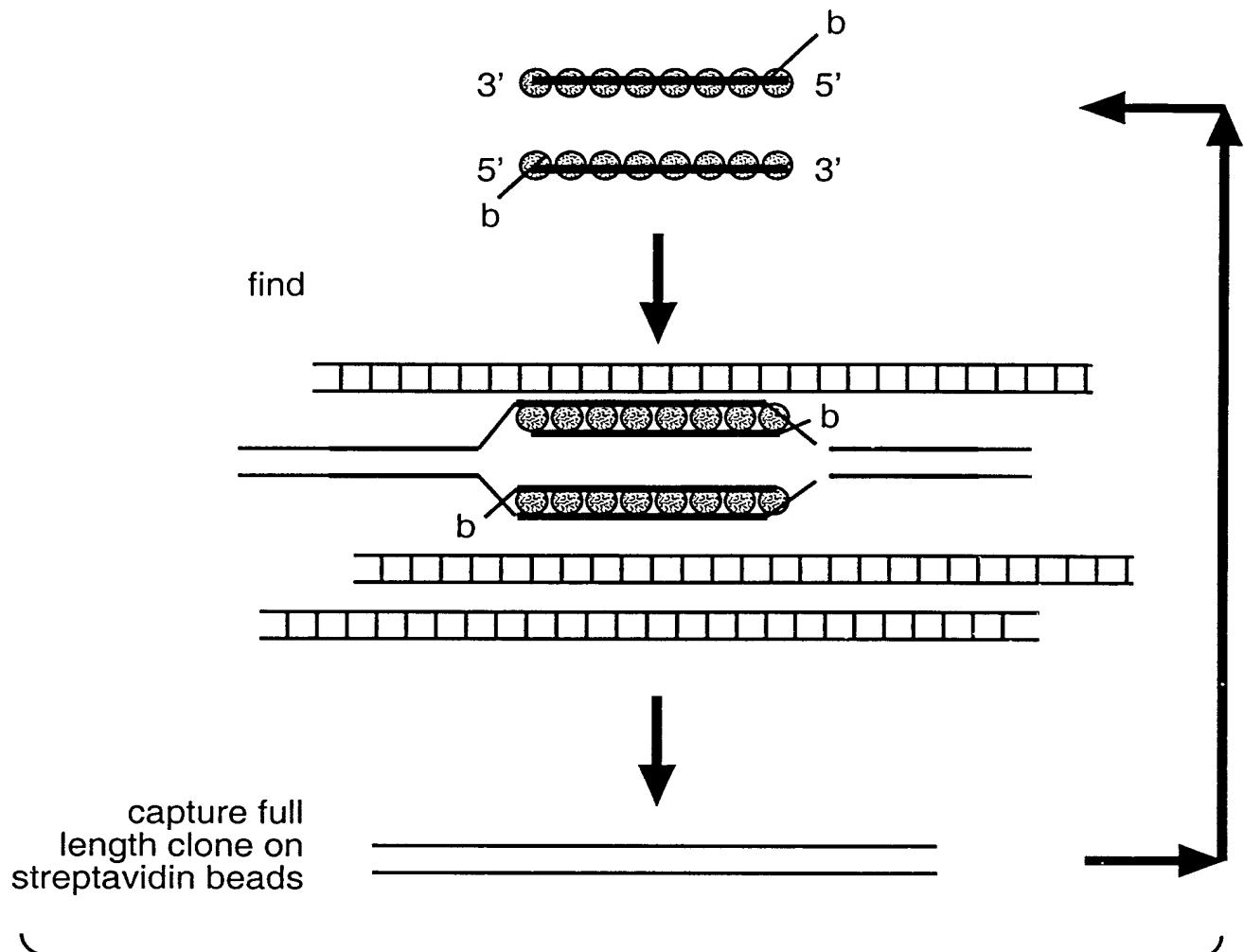


FIG._8B

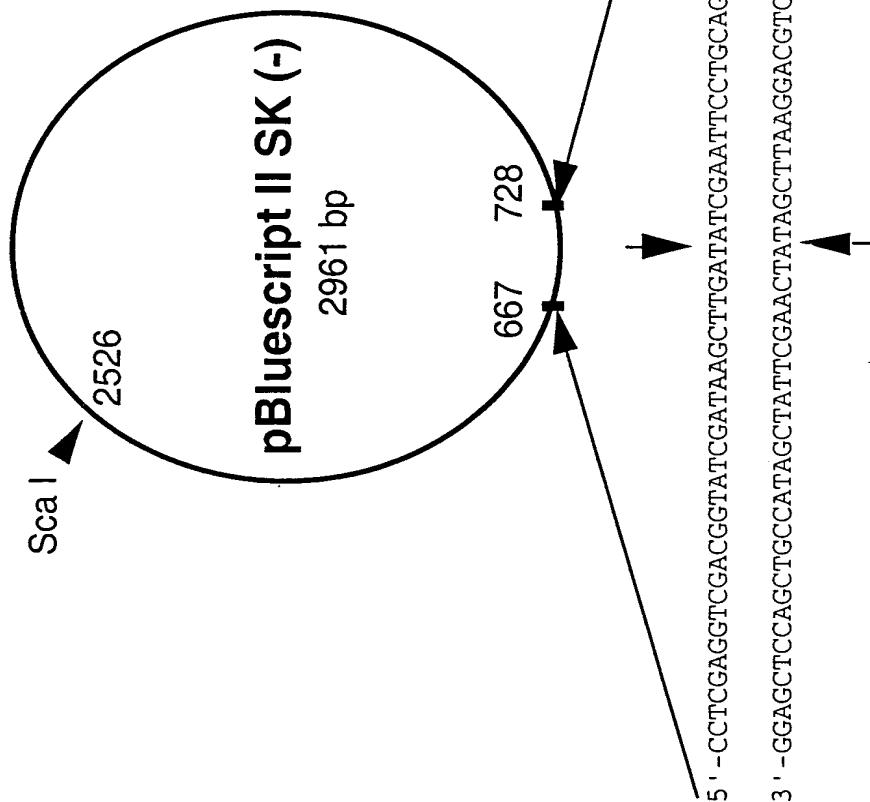


FIG.—9A

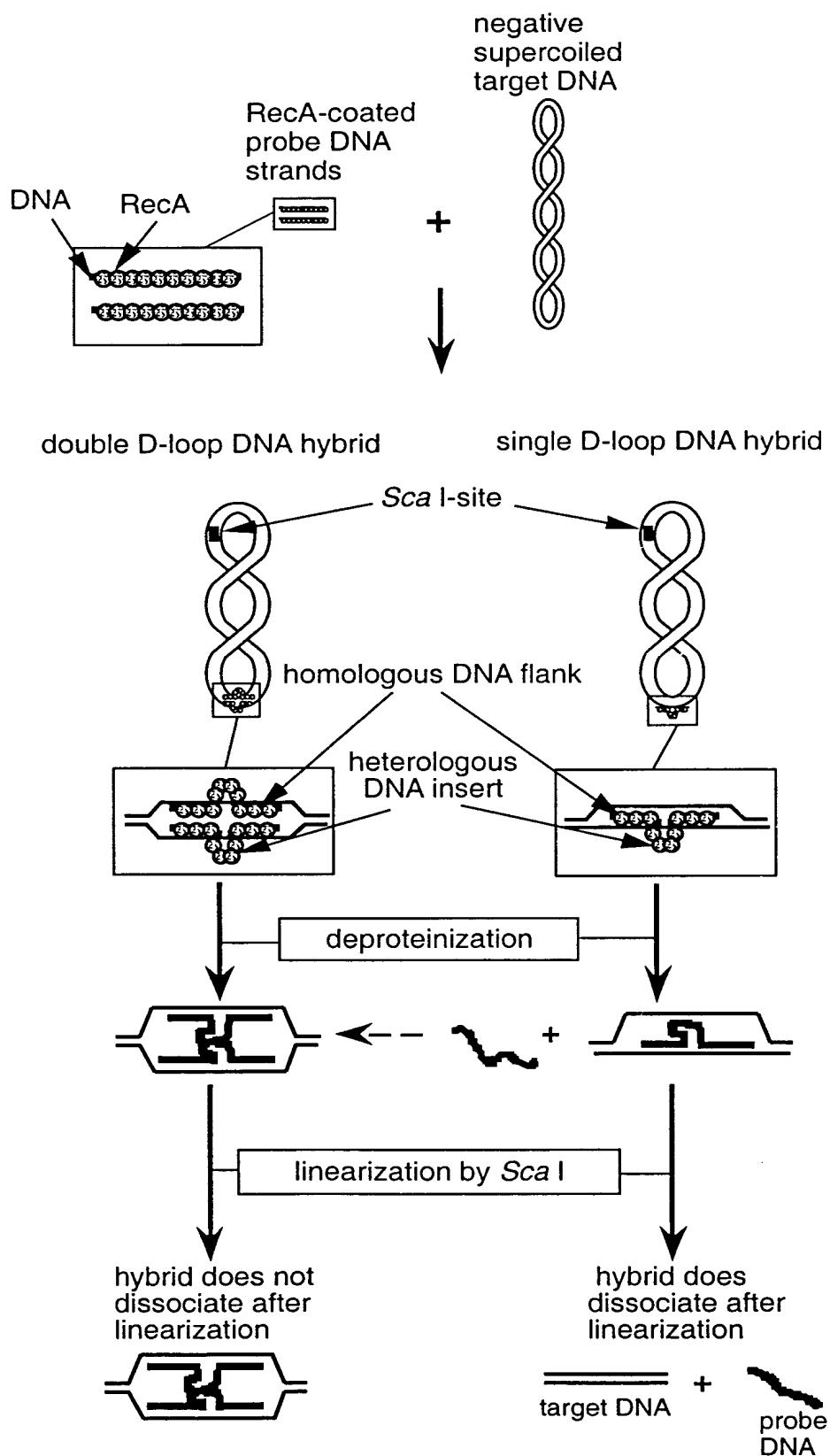
N1W
5' - CCTCGAGGTGACGGTATCGATAAGCTTGATATCGAATTCTGCAGCCCCGGGGATCCACTA-3'
N1C
3' - GGAGCTCCAGCTGCCATAGCTTAACTATAGCTTAAGGACGTGCCCCCTAGGTGAT-b

FIG.-9B

5' - CCTCGAGGTGACGGTATCGATAAGCTTGATTGGGTTGGGTTATCGAAATTCTGCAGCCGGGATCCACTA-3' **ZI_W**
 3' - GGAGCTCCAGTGCCATAGCTTACACACACACACACA**T**AGCTTAAGGACGTCGGCCCCCTAGGTGAT-b **ZI_C**

FIG.-9B

FIG. - 9C

**FIG._ 10**

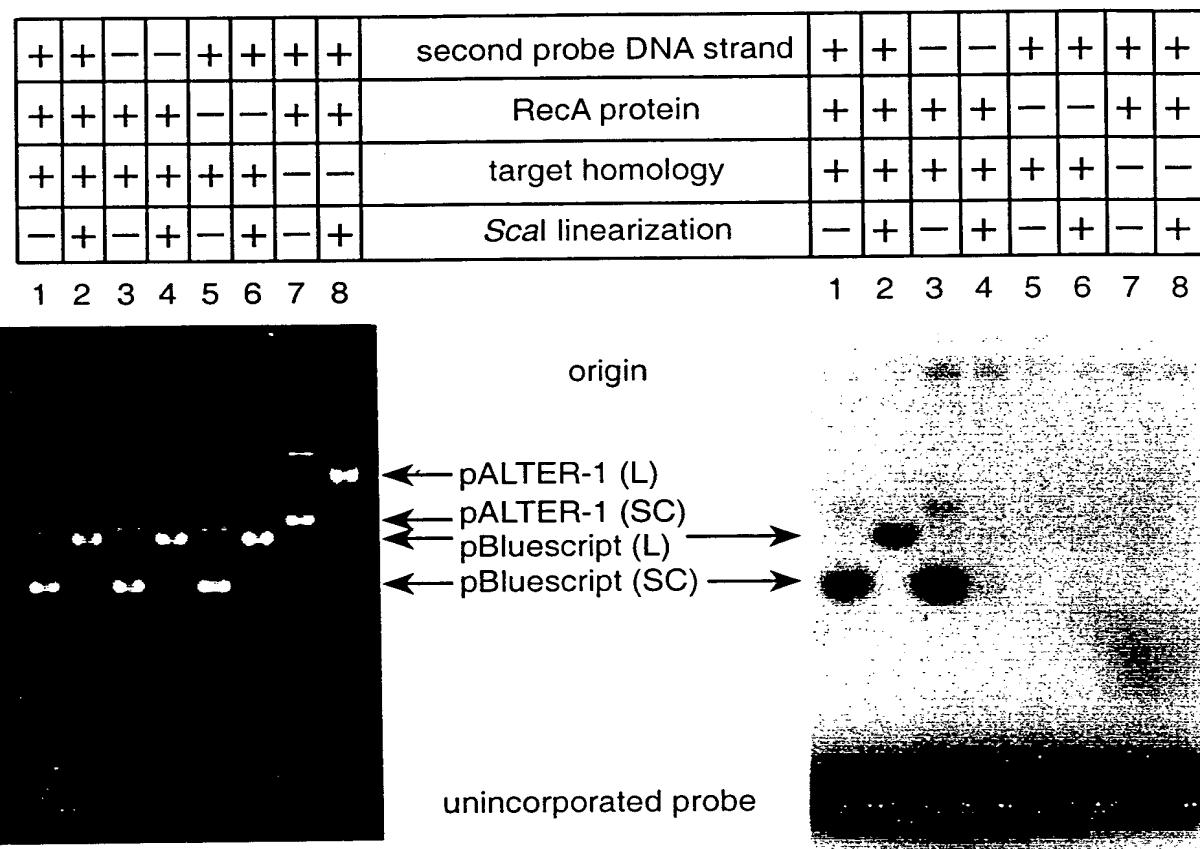
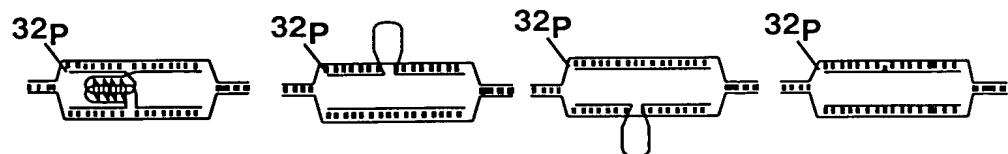


FIG._ 11

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32P-labeled probe strand

unlabeled probe strand

incubation at 65°C (min.)

lane

QI_w	QI_w	NI_w	NI_w
QI_c	NI_c	QI_c	NI_c
0 2 10 20	0 2 10 20	0 2 10 20	0 2 10 20

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

origin

→

linear hybrid →



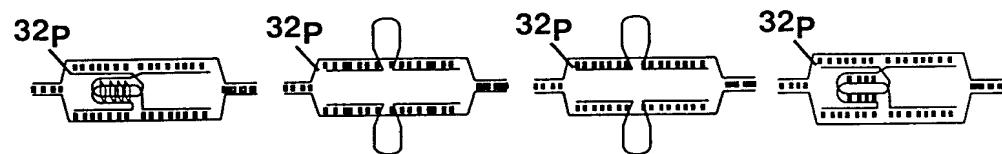
unincorporated probe



FIG._ 12A



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32P-labeled probe strand

	QI_w	QI_w	ZI_w	ZI_w
	QI_c	ZI_c	QI_c	ZI_c
incubation at 65°C (min.)	0 2 10 20	0 2 10 20	0 2 10 20	0 2 10 20

lane

origin

--->

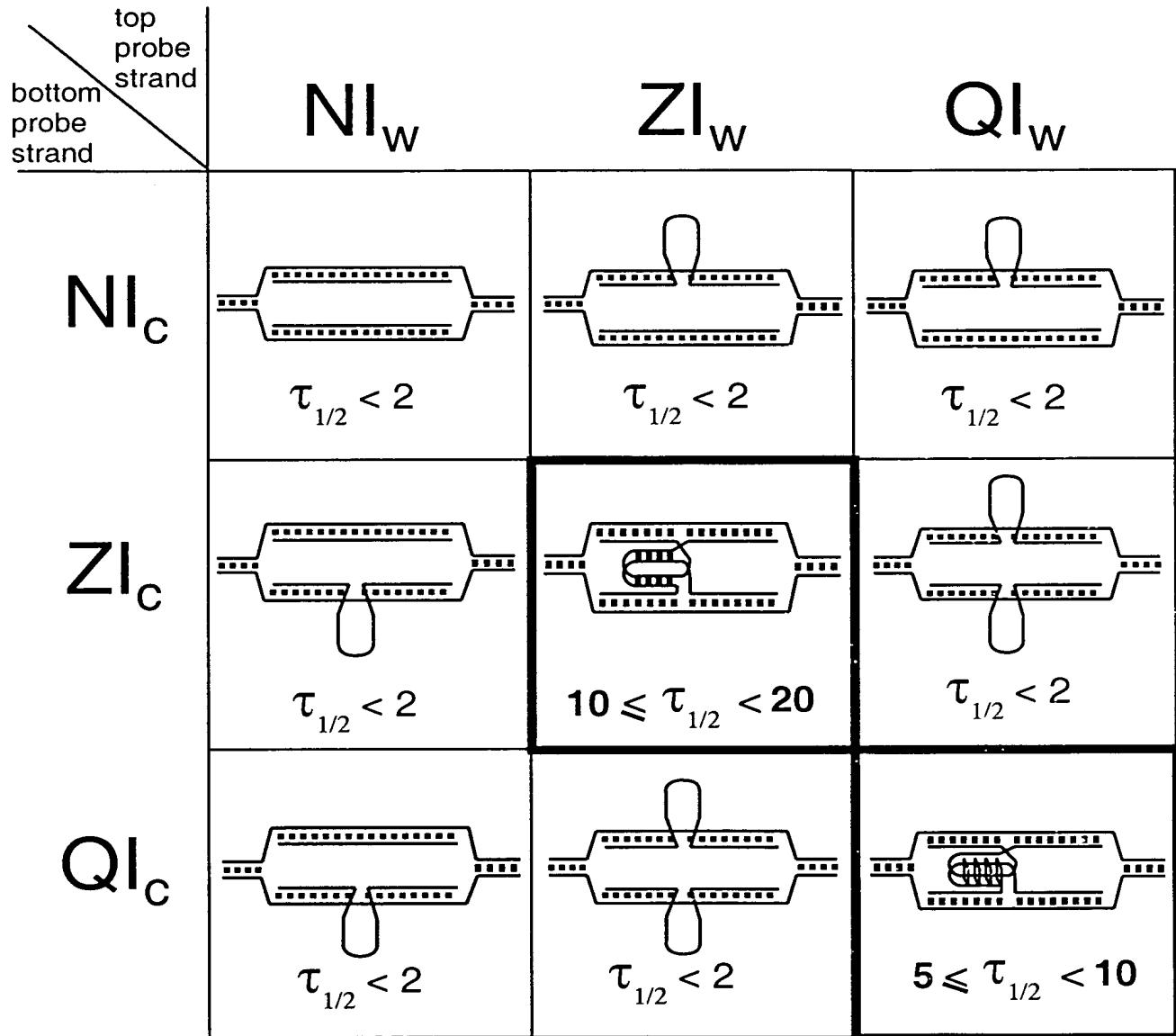
linear hybrid ➤



SC

unincorporated probe

FIG._ 12B



$\text{NI} = \text{No DNA Insert}$

$\text{ZI} = \text{Z-DNA forming Insert}$

$\text{QI} = \text{Quadruplex-DNA forming Insert}$

w = Watson DNA strand

c = Crick DNA strand

$\tau_{1/2}$ = double D-loop DNA hybrid apparent half-life time (min.)

FIG._ 13

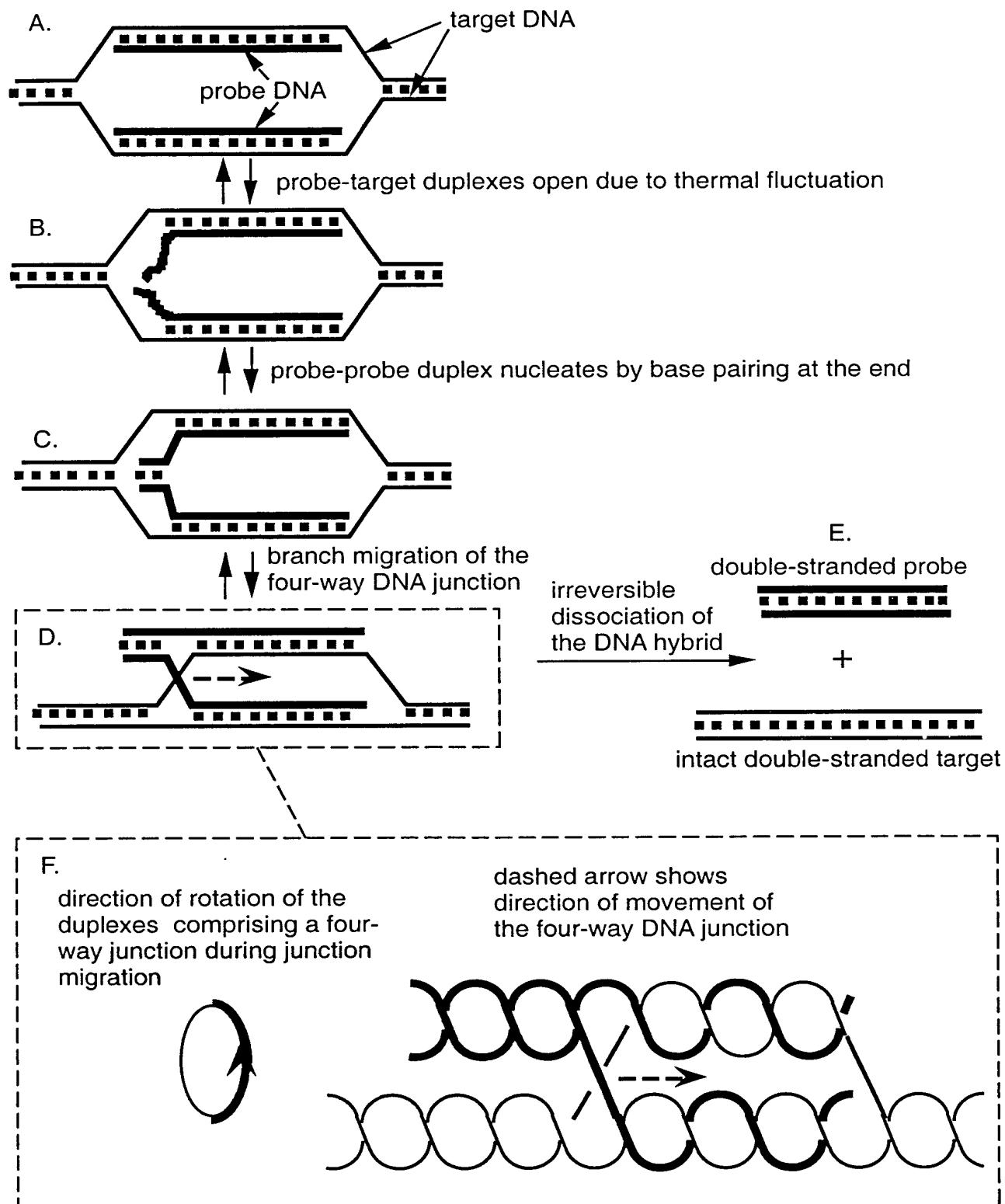


FIG.. 14



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FIG._ 15A

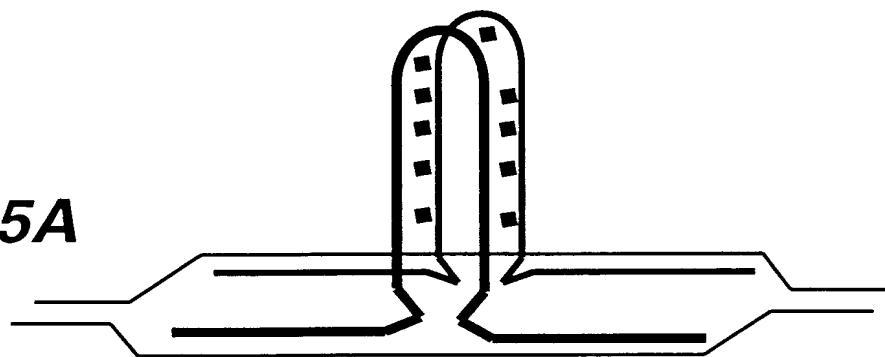


FIG._ 15B

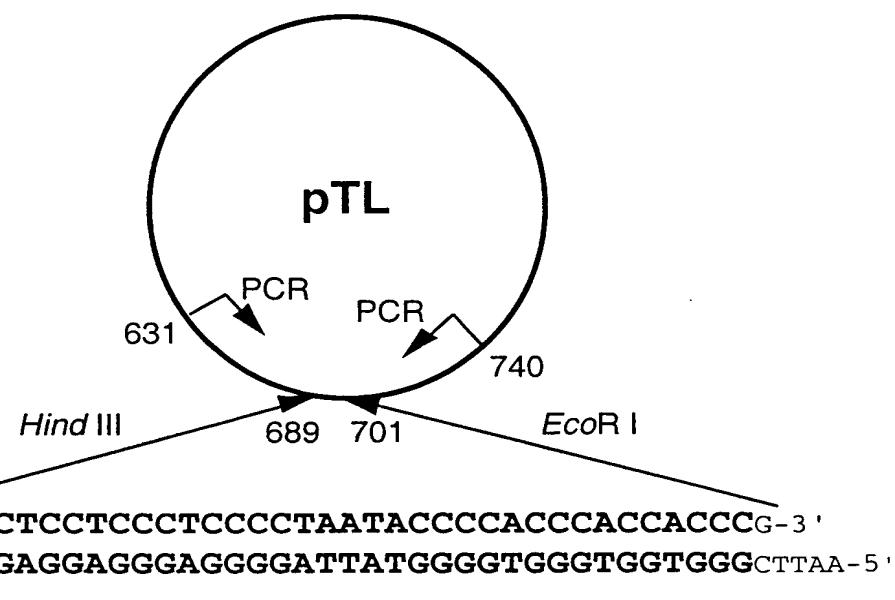
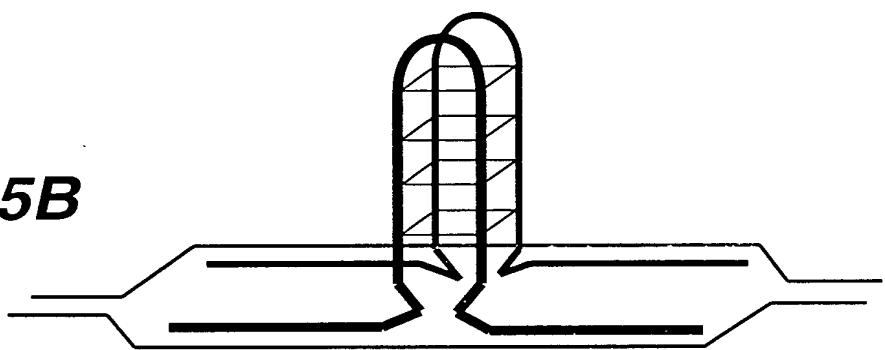


FIG._ 16



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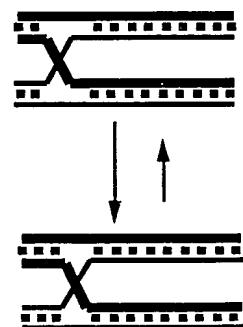
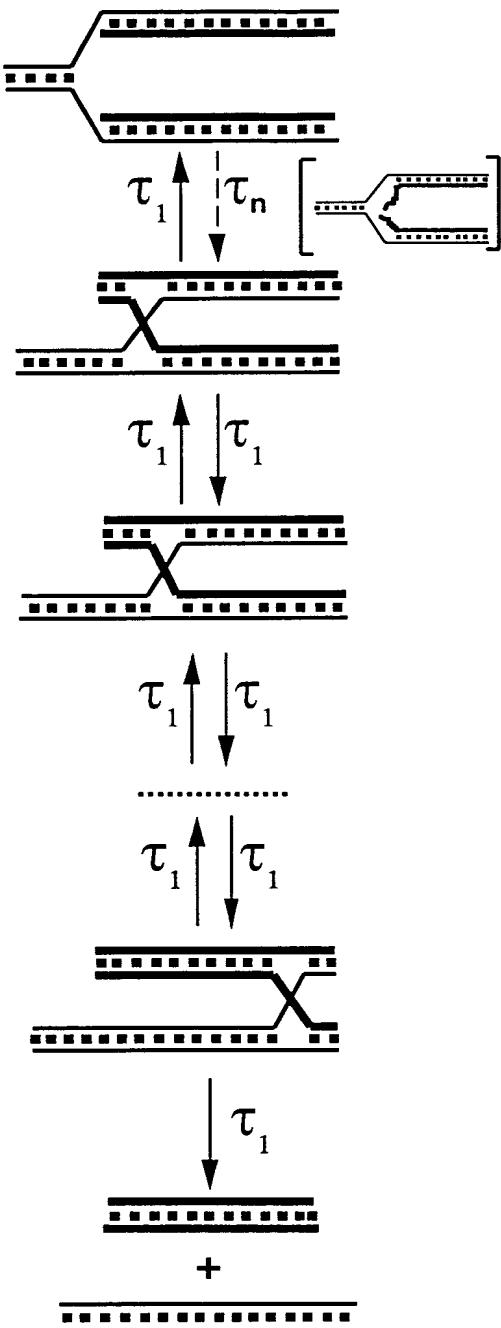
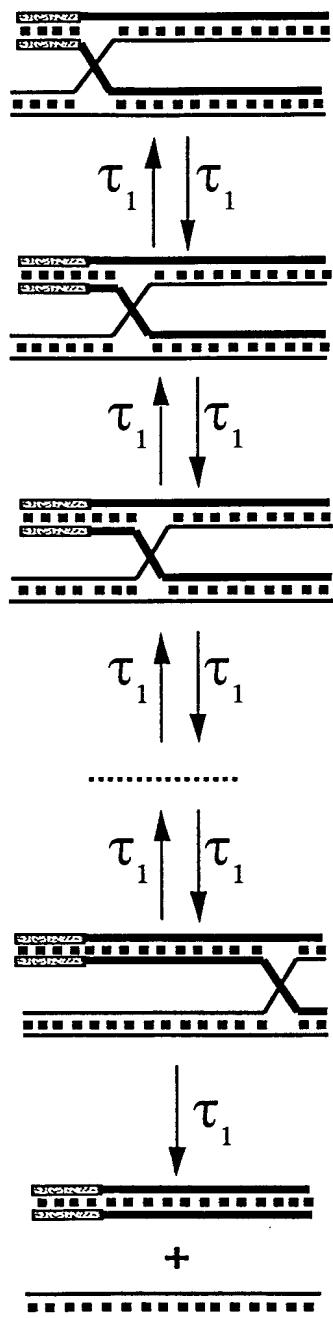


FIG. 17A

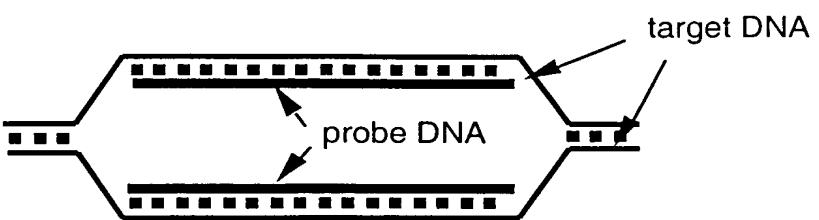
FIG. 17B

FIG. 17C

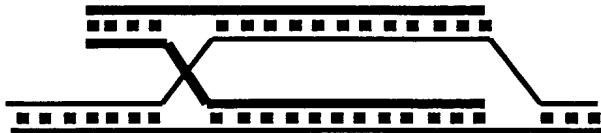


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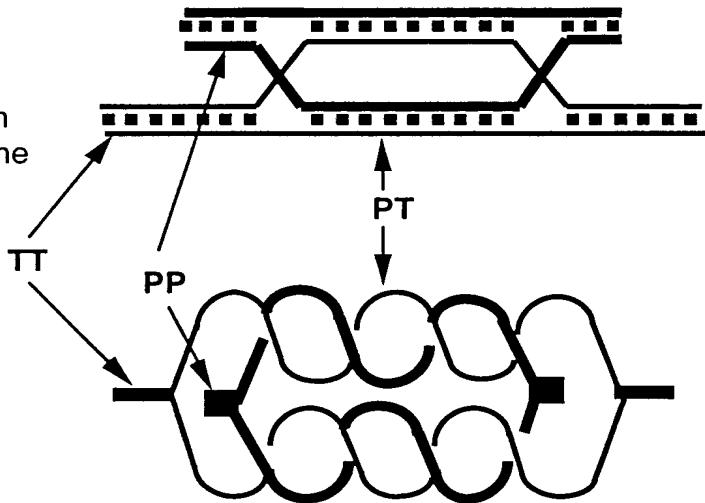
A: Double D-loop DNA without nucleation of the probe-probe duplex



B: Double D-loop DNA with single nucleation (sn) of the probe-probe duplex



C: Double D-loop DNA with double nucleation (dn) of the probe-probe duplex



TT = target-target DNA duplex

PP = probe-probe DNA duplex

PT = probe-target DNA duplex

D: Double D-loop DNA with irreversible single nucleation of the probe-probe duplex at one end

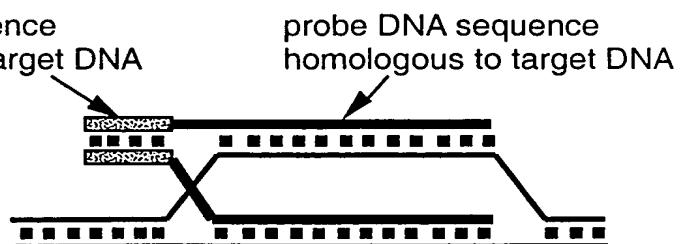


FIG._18



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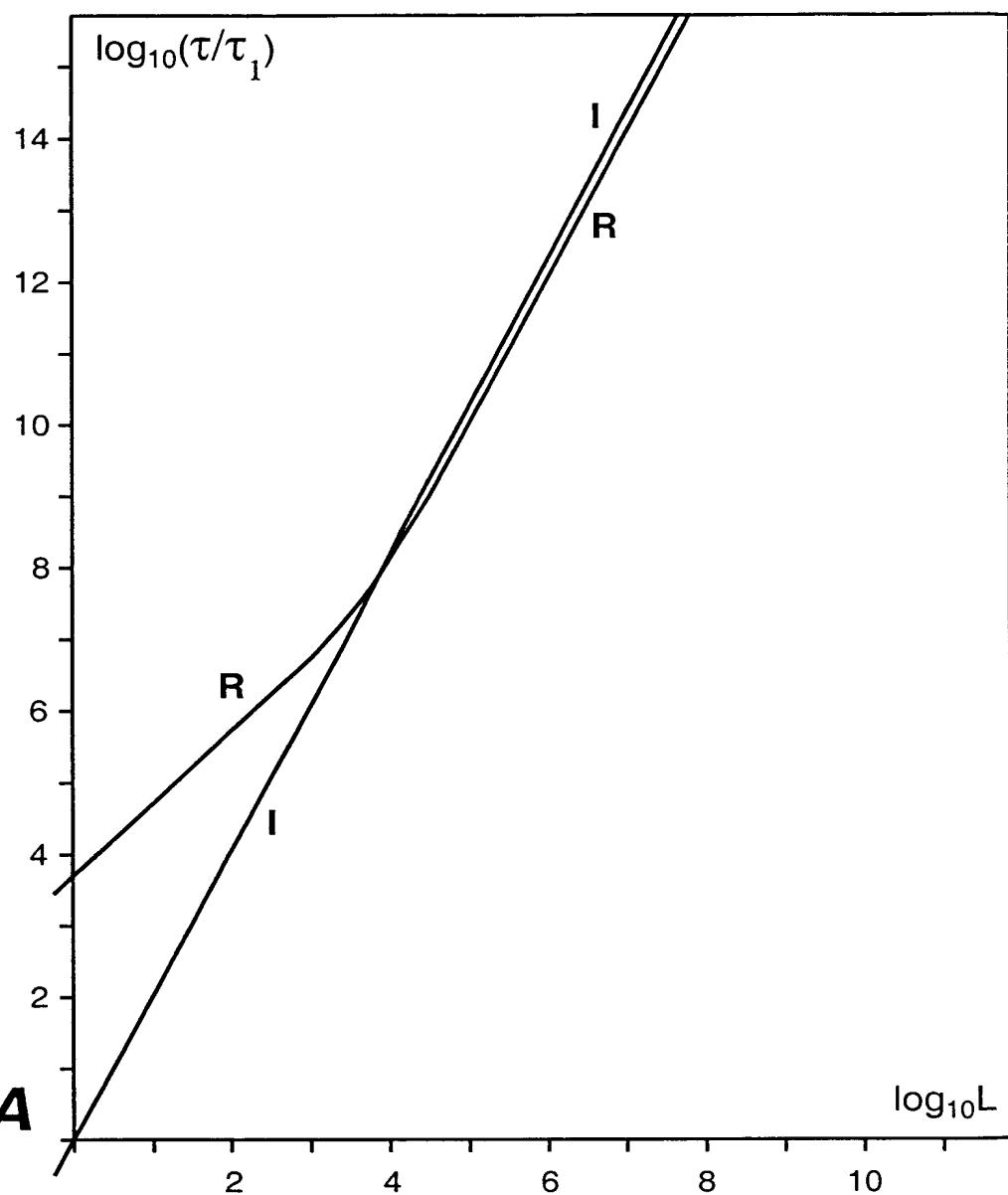


FIG._19A

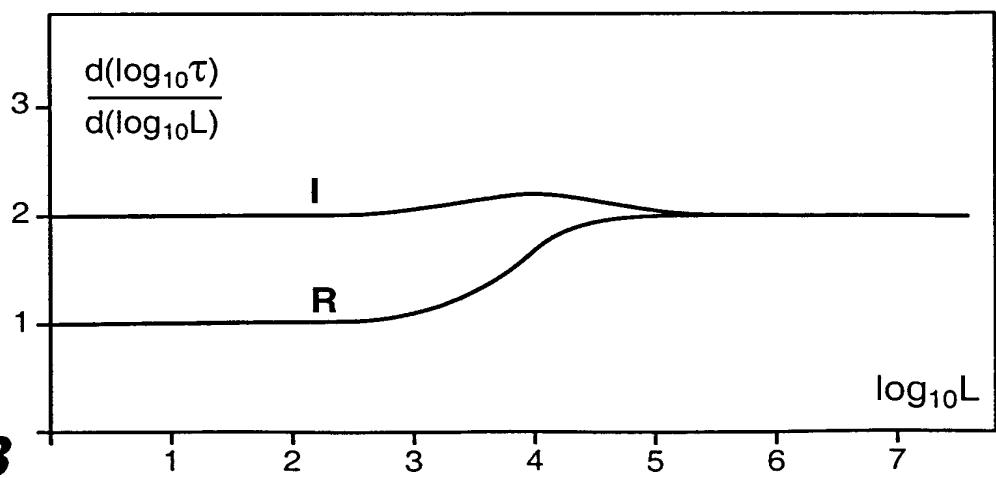


FIG._19B



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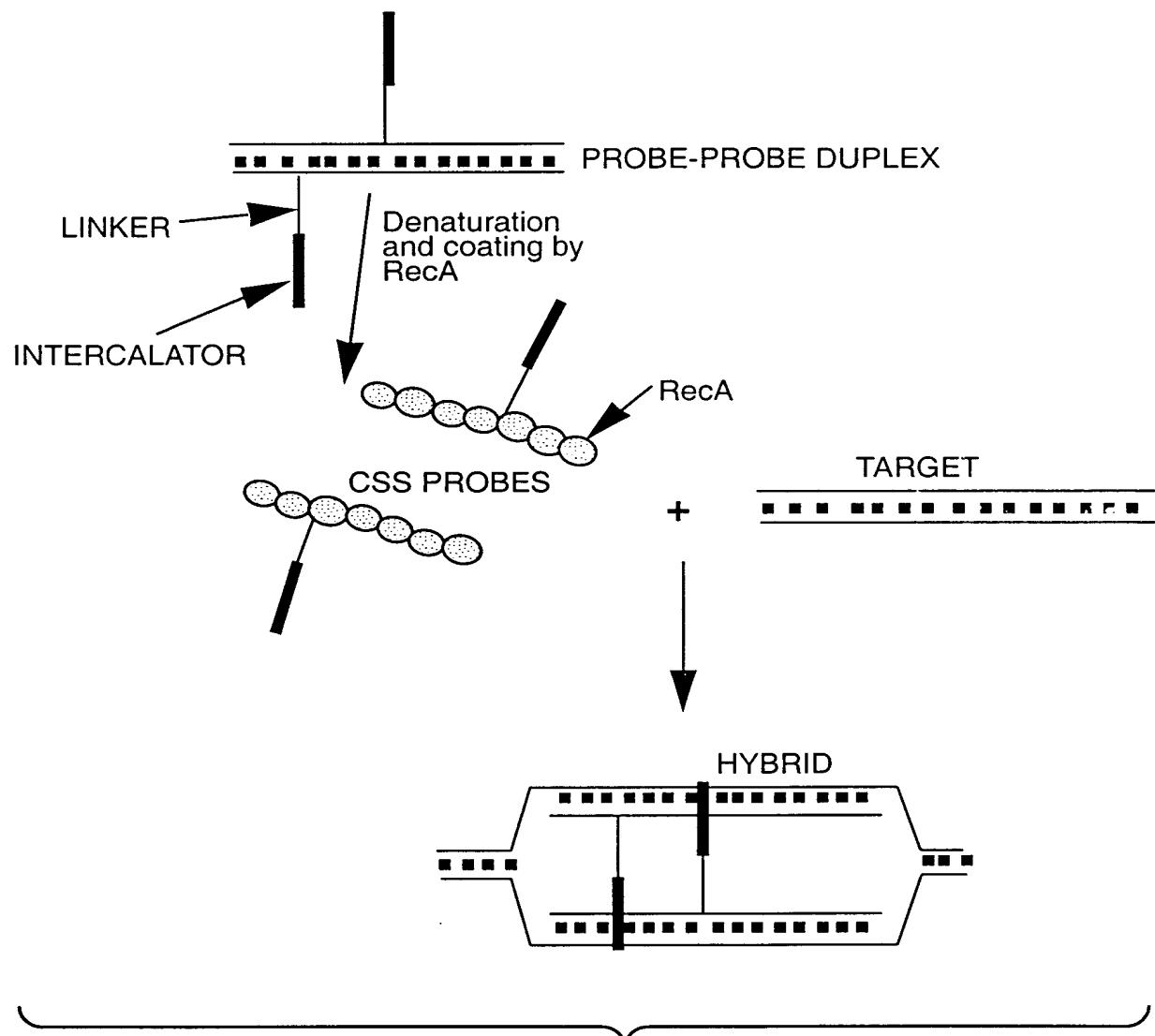


FIG..20